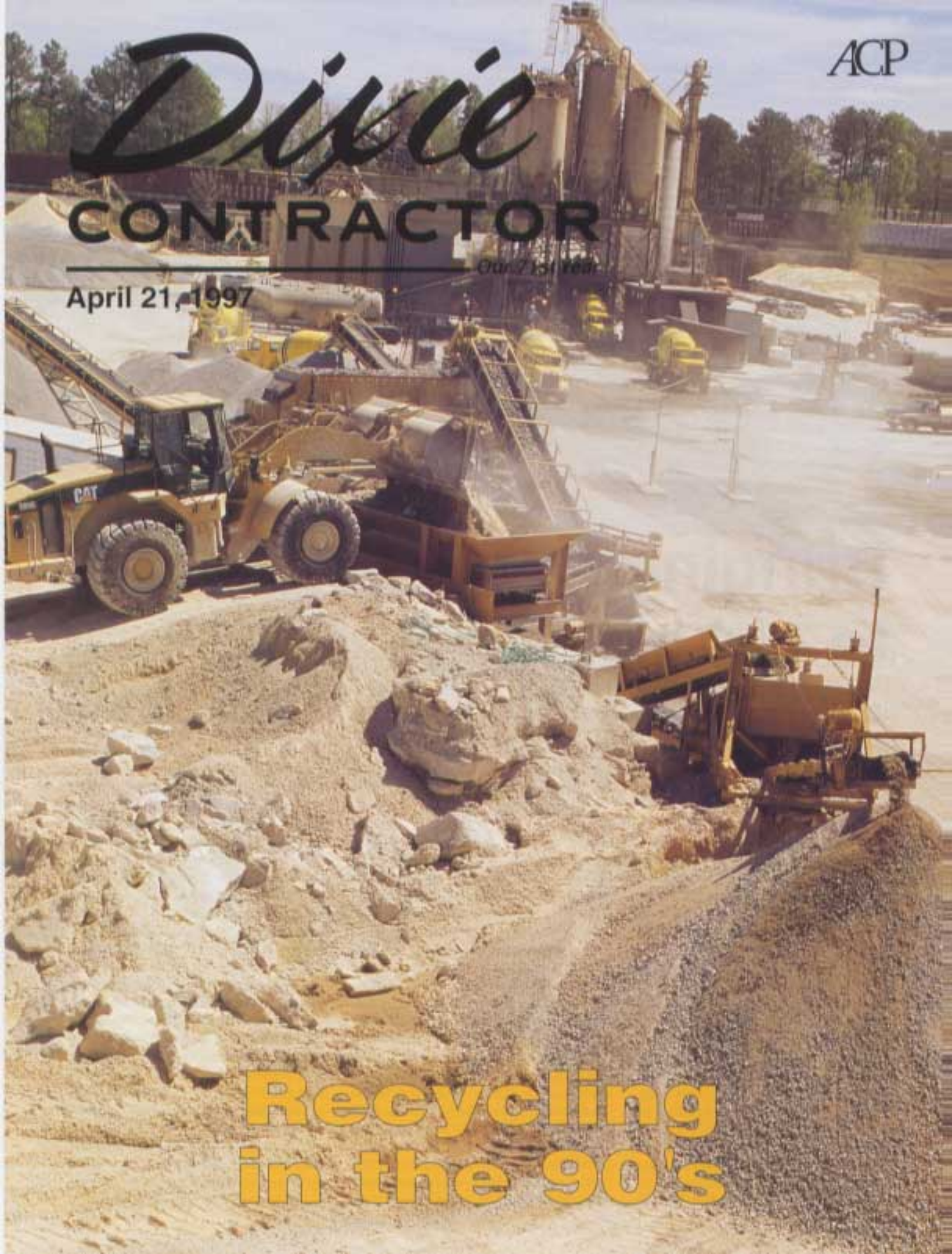
Dixie
CONTRACTOR
Our 71st Year
April 21, 1997
ACP
Recycling
in the 90's

Bringing new life to old materials

In Atlanta, Dykes Paving & Construction is giving new life to old materials – and developing new approaches to recycling at the same time. By Steve Hudson

Top: Dykes Paving & Construction *uses an Excel 3062 jaw plant to recycle concrete in a Blue Circle plant new Duluth, Ga. Inset: Jim Dykes with items recovered during recycling, including a bucket tooth and a cannonball.*

When the topic is innovation in recycling, you can be sure it won't be long until the conversation turns to Jim Dykes.

Jim Dykes is president of Dykes Paving & Construction Co., a Norcross, Ga., contractor and asphalt producer with a special interest in new solutions to old problems. Indeed, Dykes Paving & Construction is no stranger to innovation. In the past, the company has developed a variety of paving innovations, including Perma Flex stone matrix asphalt paving, now widely used in large pavement repair applications.

Currently, Dykes Paving & Construction is actively involved in developing new approaches to the use of recycled materials. The company currently runs two recycling operations – one at its Norcross headquarters, where both concrete and asphalt are recycled, and a second at Blue Circle's concrete plant in nearby Duluth. According to Jim Dykes, the recycling operations are built around Excel 3042 and 3062 jaw plants. The Blue Circle operation is devoted exclusively to concrete recycling, while the 3042 at the Norcross headquarters has been modified to run asphalt or concrete and produce multiple materials without the need to change screens.

Dykes Paving & Construction is producing a variety of materials, including surge stone, #57 stone, #67 stone, and 810 screenings.

"We also make 100 precent recycled base material out of concrete," Dykes says. Until recently his crews had been making base out of recycled asphalt paving, but a growing shortage of asphalt for recycling has now made concrete the recycling material of choice.

Dykes is also finding a ready market for steel removed from recycled concrete.

"We sell the steel to a scrap

dealer," he says, adding that the steel can be a "high percentage" of what's in the total concrete and thus can have significant value as a recycled material.

From time to time, adds Dykes, unusual materials turn up in the recycling system. A huge stainless steel meat hook was recovered at one point, but Dykes notes that the strangest find was a cannon ball.

"I've never heard of anybody else getting a cannonball out of the crusher," Dykes says.

Besides recycling, Dykes is a firm believer in the re-use of construction materials. Re-use, he says, allows leftover materials to be used in various ways, as opposed to simply being recycled.

Dykes is making extensive use of re-used concrete. The contractor has arranged with local concrete producers to take leftover partial loads, and when the mix is still fresh Dykes does not direct it toward recycling but uses it in new applications instead.

One such application of this re-used concrete is the manufacture of concrete wheel stops.

"We make 15,000 to 18,000 wheel stops each year with re-used concrete," Dykes says. The concrete used in their manufacturer comes from fresh leftovers in mixer truck loads. Small amounts of leftover but fresh concrete are discharged into wheel stop forms instead of onto the recycle pile, and the result is a product for which there is a ready market.

Dykes is carrying the idea of re-use one step farther, too, utilizing re-used materials to construct a pair of storage buildings which will ultimately shelter the company's recycled asphalt products. These buildings – one measures 100 ft. by 100 ft., while the other measures 50 ft. by 200 ft. – are being built at Dykes' Norcross facility using re-used concrete for construction of the buildings' floors and walls. The contractor is also re-using reinforcing steel, recovered from his concrete recycling operation, in the building construction effort.

These new structures will even include reused structural components from Olympics construction at Lake Lanier, north of Atlanta. A recent article in *Dixie Contractor* described how Scott Bridge Company, contractor for the Olympic rowing venue at Lake Lanier, was selling 50-ft. steel joists removed during the de-construction of the Lake Lanier venue. Dykes contacted Scott Bridge and acquired about 100 of the joists, which it plans to re-use as roof supports in the new structures.

"We'll end up with buildings with re-used concrete floors and re-used concrete walls reinforced with re-used steel, plus re-used steel joists supporting the roof," Dykes says.

A Cat 322 excavator, equipped with an *Okata breaker, prepares concrete for recycling.*

Jim Dykes continues to experiment with the use of recycled materials. His Astec double barrel plant, with its long mixing and drying chamber, is "suited for an extremely large percentage of recycled material," he says, and he is constantly working on new mix designs that will make even better use of the recycled materials that are available. In fact, of the seven feed bins at the company's Norcross plant, four are devoted to recycled products.

"Every time I think we've run to the end of the possibilities of recycling we try something new," he says.

What does the future hold for recycled materials? The move toward SMA and Superpave, which call for the use of virgin material, will cut the demand for RAP on federal project, Dykes predicts. However, demand for recycled pavement may well increase on other roads, particularly secondary and county roadways. He also sees extensive use of recycled pavement ahead in applications such as bicycle paths and walking trails.

His experience with recycled pavement materials and his knowledge of their capabilities have also allowed Dykes to specifically promote RAP in some applications. For example, Dykes has blended concrete fines, recycled asphalt and virgin aggregates in certain proportions to develop mixes that are two to three times stronger than conventional mixes.

"On selected jobs, we've been giving extended warranties for up to three years if we're allowed to design our own pavements and use recycled materials," he says.

Dykes expects to see the use of more unusual materials in recycled pavement too.

"You're going to see products that utilize the binding qualities of recycled roofing shingles and ground crumb rubber from tires," he says, "and we are finding that even glass can take the place of aggregates."

Is the goal of a 100 percent recycled mix attainable? Dykes has shown that it is.

"Through a combination of asphalt and concrete – and a lot of experimentation – we have been able to come up with asphalt blends that are virtually 100 percent recycled material," he says.

Pavement recycling, he hastens to add, is not new – even though it has only recently moved into the limelight.

"People are just now beginning to use 20 to 30 percent recycled pavement," he says, "but we actually produced 100 percent asphalt recycled paving 17 years ago." ❑

Reprinted from April 21, 1997 issue of Dixie Contractor